WHAT IS CLAIMED IS:

1. An isolated fragment of a *Chlamydia* species HMW protein wherein the apparent molecular weight of the HMW protein is about 105-115 kDa, as determined by sodium dodecylsulfate- polyacrylamide gel electrophoresis, wherein the *Chlamydia* species is *Chlamydia trachomatis, Chlamydia pecorum, Chlamydia psittaci or Chlamydia pneumoniae*, said fragment consisting of seven to fifty amino acids of the HMW protein, wherein the fragment is recognizable by an antibody that specifically binds to a peptide comprising an amino acid sequence of SEQ ID No. 2, 15 or 16.

2. An isolated fragment of a *Chlamydia* HMW protein, wherein the *Chlamydia* species is *Chlamydia trachomatis, Chlamydia pecorum, or Chlamydia pneumoniae* and said fragment comprises an amino acid sequence shown in SEQ ID NO: 3, 17 or 25-37 wherein the fragment is recognizable by an antibody that specifically binds to a peptide comprising an amino acid sequence of SEQ ID No. 2, 15 or 16.

3. An isolated nucleic acid molecule comprising:

a) a nucleic acid sequence of SEQ ID No.: 23 or 24, or the complement thereof;

b) a nucleic acid sequence encoding a HMW protein comprising the amino acid sequence of SEQ ID No.: 15 or 16; or

c) a nucleic acid sequence which hybridizes under conditions comprising 50% formamide and 37°C to any one of the sequences defined in a) or b).

4. A recombinant expression vector adapted for transformation of a host comprising the nucleic acid molecule of claim 3.

5. Antisera raised against an antigenic composition, said composition comprising an adjuvant and an isolated *Chlamydia* species high molecular weight (HMW) protein, wherein said HMW protein comprises an amino acid sequence of amino acid residues 29 to 1012 of SEQ ID NO.: 2, residues 29 to 1013 of SEQ ID NO.: 15 or residues 29 to 1013 of SEQ ID NO.: 16.

6. An isolated antibody that specifically binds a *Chlamydia* HMW protein, said protein comprising:

a) a protein encoded by a nucleic acid comprising nucleotide residues 466 to 3417 of SEQ ID NO.: 1, residues 82 to 3036 of SEQ ID NO.: 23 or residues 85 to 3039 of SEQ ID NO.: 24;

b) a protein encoded by a nucleic acid comprising a nucleotide sequence of SEQ ID NO.: 1, 23 or 24;

c) an amino acid sequence of SEQ ID NO.: 2 or 16; or

d) an amino acid sequence of amino acid residues 29 to 1012 of SEQ ID NO.: 2, residues 29 to 1013 of SEQ ID NO.: 15 or residues 29 to 1013 of SEQ ID NO.: 16.

7. A method for detecting anti-*Chlamydia* antibodies in a test sample comprising the steps of:

a) contacting said sample with a *Chlamydia* HMW protein, said HMW protein comprising:

i) a protein encoded by a nucleic acid comprising nucleotide residues 466 to 3417 of SEQ ID NO.: 1, residues 82 to 3036 of SEQ ID NO.: 23 or residues 85 to 3039 of SEQ ID NO.: 24;

ii) a protein encoded by a nucleic acid comprising a nucleotide sequence of SEQ ID NO.: 1, 23 or 24;

iii) an amino acid sequence of SEQ ID NO.: 2 or 16; or

iv) an amino acid sequence of amino acid residues 29 to 1012 of SEQ ID NO.: 2, residues 29 to 1013 of SEQ ID NO.: 15 or residues 29 to 1013 of SEQ ID NO.: 16.

to form, in the presence of said antibodies, *Chlamydia* antigen: anti-*Chlamydia* antibody immunocomplexes, and further,

b) either detecting the presence of or measuring the amount of said immunocomplexes formed during step a) as an indication of the presence of said anti-*Chlamydia* antibodies in the test sample.

8. A diagnostic kit for detecting antibodies to *Chlamydia*, said kit comprising a *Chlamydia* HMW protein, said HMW protein comprising:

a) a protein encoded by a nucleic acid comprising nucleotide residues 466 to 3417 of SEQ ID NO.: 1, residues 82 to 3036 of SEQ ID NO.: 23 or residues 85 to 3039 of SEQ ID NO.: 24;

b) a protein encoded by a nucleic acid comprising a nucleotide sequence of SEQ ID NO.: 1, 23 or 24;

c) an amino acid sequence of SEQ ID NO.: 2 or 16; or

d) an amino acid sequence of amino acid residues 29 to 1012 of SEQ ID NO.: 2, residues 29 to 1013 of SEQ ID NO.: 15 or residues 29 to 1013 of SEQ ID NO.: 16; and

a container means for contacting said protein or composition with a test sample suspected of having said antibodies and reagent means for detecting or measuring *Chlamydia* antigen: anti-*Chlamydia* antibody immunocomplexes formed between said protein or composition and said antibodies.

9. A method for detecting the presence of *Chlamydia* in a test sample comprising the steps of:

a) contacting said test sample with the antibody of claim 6 for a time sufficient to allow said antibodies to bind *Chlamydia*, if present, and to form a *Chlamydia*: anti-*Chlamydia* antibody immunocomplexes, and further,

b) either detecting the presence of or measuring the amount of said immunocomplexes formed during step a) as an indication of the presence of said *Chlamydia* in the test sample.

10. A diagnostic kit for detecting the presence of *Chlamydia*, said kit comprising the antibody of claim 6, container means for contacting said antibody with a test sample suspected of having said *Chlamydia* and reagent means for detecting or measuring *Chlamydia*: anti-*Chlamydia* antibody immunocomplexes formed between said antibodies and said *Chlamydia*.

11. A method for determining the presence of nucleic acid encoding a HMW protein in a sample, comprising the steps of:

a) contacting the sample with the nucleic acid molecule of claim 3 or the complement thereof to produce duplexes comprising the nucleic acid molecule and any said nucleic acid molecule

encoding the HMW protein in the sample and specifically hybridizable therewith; and

b) determining the production of duplexes.

12. A diagnostic kit for determining the presence of nucleic acid encoding a HMW protein or fragment or analogue thereof in a sample, comprising:

a) the nucleic acid molecule of claim 3 or the complement thereof;

b) means for contacting the nucleic acid with the sample to produce duplexes comprising the nucleic acid molecule and any said nucleic acid encoding the HMW protein in the sample and specifically hybridizable therewith; and

c) means for determining the production of duplexes.

13. An isolated fragment of a *Chlamydia* HMW protein, said fragment encoded by plasmid pJJ 36-J having ATTC Accession No. PTA-3719.

14. An antigenic composition, comprising an adjuvant and an isolated *Chlamydia* species high molecular weight (HMW) protein, said HMW protein encoded by a nucleic acid comprising nucleotide residues 466 to 3417 of SEQ ID NO.: 1, residues 82 to 3036 of SEQ ID NO.: 23 or residues 85 to 3039 of SEQ ID NO.: 24, wherein the *Chlamydia* species is *Chlamydia trachomatis*, *Chlamydia pecorum*, or *Chlamydia pneumoniae*.

15. The antigenic composition of claim 14, wherein said HMW protein comprises an amino acid sequence of amino acid residues 29 to 1012 of SEQ ID NO.: 2, residues 29 to 1013 of SEQ ID NO.: 15 or residues 29 to 1013 of SEQ ID NO.: 16.

16. The antigenic composition of claim 14, wherein said HMW protein is obtained using plasmid pAH342 obtainable from *E.coli* BL21 (pAH342) assigned ATCC accession number 985538.

17. An antigenic composition, comprising a pharmaceutical carrier and an isolated *Chlamydia* species HMW protein, said HMW protein encoded by a nucleic acid comprising a nucleotide sequence of SEQ ID NO.: 1, 23 or 24, wherein the *Chlamydia* species is *Chlamydia trachomatis, Chlamydia pecorum, or Chlamydia pneumoniae.*

18. An antigenic composition, comprising a pharmaceutical carrier and an isolated *Chlamydia* species HMW protein, wherein said HMW comprises an amino acid sequence of SEQ ID NO.: 2 or 16 and the *Chlamydia* species is *Chlamydia trachomatis, Chlamydia pecorum, or Chlamydia pneumoniae.*

19. An antigenic composition, comprising a pharmaceutical carrier and an isolated *Chlamydia* species HMW protein, wherein said HMW comprises an amino acid sequence of SEQ ID NO.: 15 and the *Chlamydia* species is *Chlamydia trachomatis, Chlamydia pecorum, or Chlamydia pneumoniae.*

20. The composition of claim 14-19, wherein said composition is formulated as a microparticle, a capsule, a liposome preparation or an emulsion.

21. An isolated *Chlamydia* HMW protein, comprising a recombinantly produced amino acid sequence encoded by a nucleic acid comprising SEQ ID NO.: 1, 23 or 24 wherein the *Chlamydia* species is *Chlamydia trachomatis, Chlamydia pecorum, or Chlamydia pneumoniae.*

22. An isolated *Chlamydia* HMW protein, comprising an amino acid sequence of SEQ ID NO.: 2, 15, or 16 wherein the *Chlamydia* species is *Chlamydia trachomatis, Chlamydia pecorum, or Chlamydia pneumoniae*.

23. A vaccine composition, comprising:

a) at least one component selected from the group consisting of:

i) an isolated *Chlamydia* species HMW protein, said HMW protein encoded by a nucleotide sequence comprising nucleotide residues 466 to 3417 of SEQ ID NO.: 1, residues 82 to 3036 of SEQ ID NO.: 23 or residues 85 to 3039 of SEQ ID NO.: 24; and

ii) an isolated *Chlamydia* species HMW protein, said HMW protein encoded by nucleic acid comprising a nucleotide sequence of SEQ ID NO.: 1, 23 or 24;

b) an adjuvant; and

c) optionally, a pharmaceutical carrier suitable for *in vivo* administration; wherein the vaccine produces an immune response when administered to a host and the *Chlamydia* species is *Chlamydia trachomatis, Chlamydia pecorum, Chlamydia psittaci or Chlamydia pneumoniae*.

24. The vaccine composition of Claim 23, wherein the pharmaceutical carrier is suitable for *in vivo* administration to a human.

25. The vaccine composition of Claim 23, wherein at least one component is an isolated *Chlamydia* HMW protein comprising an amino acid sequence of amino acid SEQ ID NO.: 2 or 16, amino acid residues 29 to 1012 of SEQ ID NO.: 2, amino

acid residues 29 to 1013 of SEQ ID NO.: 15 or amino acid residues 29 to 1013 of SEQ ID NO.: 16.

26. A vaccine composition, comprising:

a) an isolated *Chlamydia* species HMW protein, said HMW protein comprising an amino acid sequence of SEQ ID NO.: 15;

b) an adjuvant; and

c) optionally, a pharmaceutical carrier suitable for *in vivo* administration;

wherein the vaccine produces an immune response when administered to a host and the *Chlamydia* species is *Chlamydia trachomatis, Chlamydia pecorum, Chlamydia psittaci or Chlamydia pneumoniae.*